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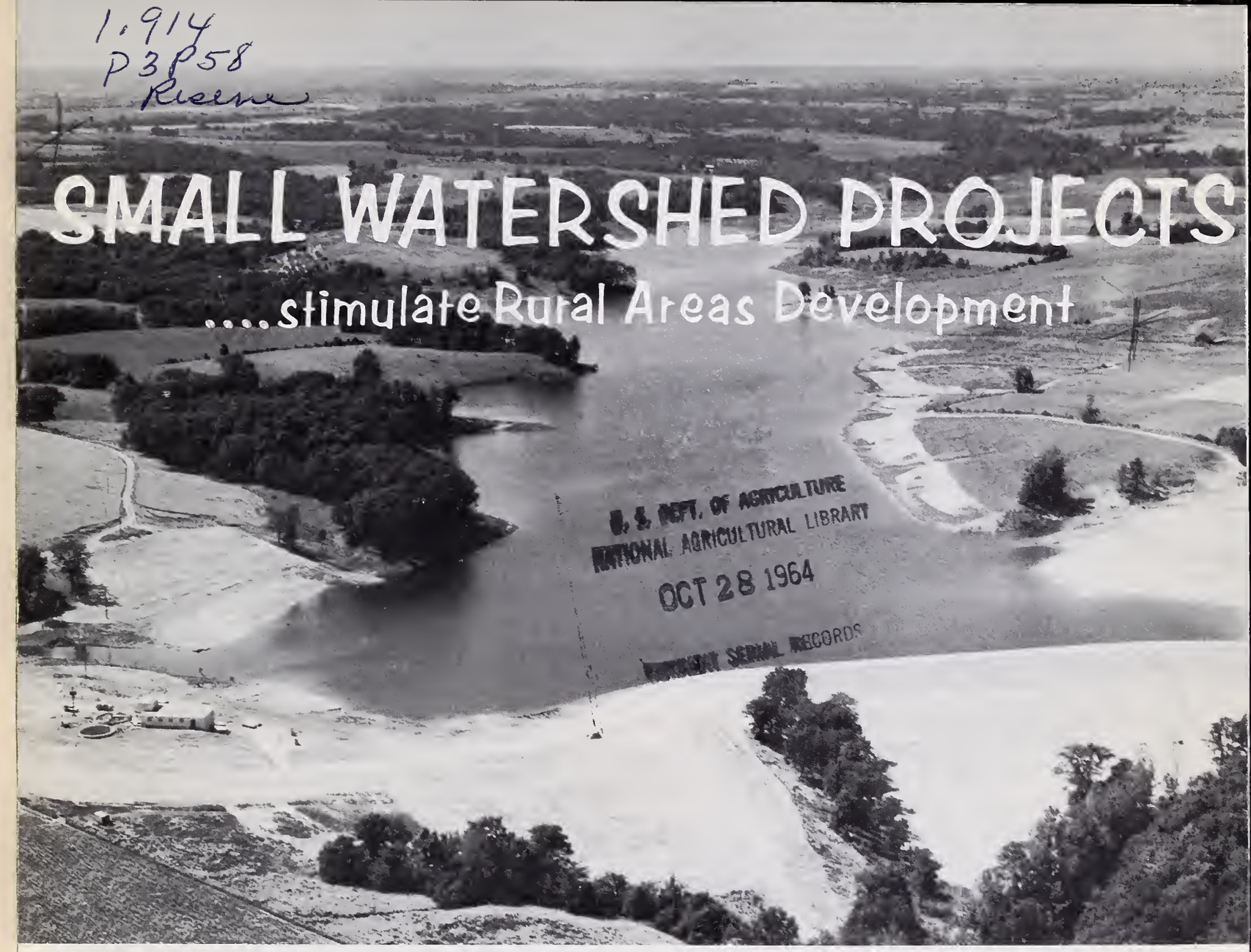
SMALL WATERSHED PROJECTS

....stimulate Rural Areas Development



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strengthening the rural economy

Small watershed projects offer opportunities to small cities, town, and rural areas throughout the Nation in stimulating economic growth. Where projects have been developed for multipurposes, both urban and rural areas have benefited.

Freedom from floods, erosion, and siltation have reduced the risks in farming, lowered maintenance costs on roads and bridges, and freed urban communities from the threat of costly damages.

Water impounded in upstream reservoirs offers opportunities to develop fishing, boating, hunting, swimming, picnicking, camping, and other recreation facilities.

The same reservoirs can supply water for irrigation and for municipal and industrial uses to meet the growing needs for water to attract new industries and allow for future expansion of existing industries and municipal and residential areas.

Hundreds of communities are already taking advantage of the small watershed program and are benefiting by it. Thousands of other areas are in need of this type of watershed development, made possible through the Watershed Protection and Flood Protection Act (Public Law 566) of 1954 and its amendments. The program is administered by the Department of Agriculture's Soil Conservation Service.

The small watershed program is a self - help program. Local people initiate and help plan the projects, build them, help pay for them, and operate and maintain them. They own all the structures that may be built.

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PICTURE STORY 162
MARCH 1964

Key elements in upstream watershed projects are the conservation measures on the land coupled with small flood retarding dams. The contour farming, strip cropping, and terraces allow for maximum penetration of rainfall and keep water from running off the sloping land too fast. The dam holds back the excess runoff and discharges it at a safe rate down creeks and streams. The average watershed project of about 60,000 acres of land has six dams. Minn-1731

ENCOURAGE COMMUNITY DEVELOPMENT

The purposes of the watershed act--flood prevention, family farm improvement, soil and water conservation, recreation, municipal and industrial water supply and agricultural water management--often form a springboard to new economic growth and community development. Watershed projects have helped stem low income, underemployment, rural poverty, and declining small town populations.

For example the adequate water supply and protection from floods brought about through the Mountain Run Watershed project have attracted three new industries to Culpeper, Virginia, employing 500 local people. A community hospital, held up due to lack of sufficient water supply, has since been completed. Income of workers at the three industries and hospital is $1,750,000 annually. In addition, land that was once idle because of periodic flooding now supports a shopping center and new homes.

The mayor of Pennsboro, West Virginia, said, "The Bond's Creek Watershed project is like a new quarter of a million dollar industry to us in the number of people and resources it will bring into our economy." The project will not only put an end to $18,000 in annual flood damages to farmland, but will also provide the area with a 375 acre public park and 12 acre lake for recreational purposes. The protected watershed has already been credited with attracting five small industries to the community.

In Georgia's Little Tallapposa River Watershed a new industry, employing 400 local people, has been attracted to the town of Temple because of a guaranteed water supply from a watershed reservoir. Ninety percent of the work force is drawn from small farms in the area. Nearby Villa Rica, which developed another of the watershed's reservoirs to store 445 acre feet of water for its municipal and industrial needs, has attracted a plant that will eventually employ 200 people. Carrollton--the largest community in the area--is developing one watershed reservoir to store 1,954 acre feet of water for future municipal and industrial uses.

Other towns in the area have joined with the supervisors of the West Georgia Soil and Water Conservation District to petition for an expansion of the watershed project to include another 139,000 acres so that they too might have flood protection and develop much needed water supplies.

Meanwhile on the farmland in the watershed, acreage of cultivated land has been reduced by one-third and cotton and corn acreage has decreased by more than 75 percent by farmers desiring to convert their land to crops the soil is more capable of producing. Most of this conversion has been to pasture and trees with some being used for truck crops.

New recreation opportunities have also resulted from the watershed project. Local people have built a community clubhouse and recreation area adjacent to one of the flood detention dams. A duck gate has been installed in another structure and the area is being developed as a wildlife habitat.

In Kentucky's Mud River Watershed project, recreation is a major development. Here one of the 26 flood detention reservoirs was enlarged to create a 900 acre lake. The Kentucky Department of Fish and Wildlife Resources, one of the project sponsors, helped finance and will manage the lake for recreation purposes for use by several hundred thousand people annually. The watershed project has also enhanced the area's industrial climate. One floodwater retarding structure, located above Lewisburg, was developed to include 30 million gallons of water for the town's municipal and industrial needs. Prior to the project, this rural community had no municipal water system. Already a small industry which manufactures hog feeders has located in Lewisburg. A wood products plant will expand and

Industry plus soil and water conservation mean rural areas development in Arkansas' Six Mile Creek Watershed project. The watershed project reservoir protects downstream land from floods and provides a dependable water supply for the factory. In turn, this hosiery plant in Logan County stimulates the economy by offering employment to area people. Ark-62225

Ninety percent of the 400 people employed at this new plant in Temple, Georgia, are drawn from small farms in the area, giving rural people an opportunity to supplement their income. The plant was located here because of adequate water from a reservoir in the Little Tallopoosa River Watershed project. Ga-D7-77

Floods cost the Nation $1 billion annually, with more than one-half of the damage occurring in the small upstream areas. Floods of this nature are being greatly reduced through small watershed projects. Ida-25035

another wood working industry plans to locate in the community. A new nursing home is in the planning stages. In all, 170 new jobs are expected in the community as the result of an adequate water supply and the desire of local people to move ahead.

Another example of how a watershed project can stimulate rural areas development is illustrated on the Six Mile Creek Watershed project in Arkansas where four industries have come into the watershed area since the project was established. The four companies employ more than 650 local people and have a combined payroll of more than a million dollars a year. Three of the firms depend on water from one or more of the project's 24 flood retarding dams for its present needs and future development.

REDUCE FLOOD DAMAGES

Towns and cities face multi-million dollar flood damages each year. Farmers and ranchers suffer crop and irreplaceable soil losses when land is overrun by water or buried under silt and debris.

Small watershed projects have repeatedly proved their effectiveness in curbing floods.

In the spring of 1963 a heavy rain, measuring 3.4 inches, fell in south-central Ohio on land frozen to depths of 26 inches. In areas adjacent to the Upper Hocking Watershed project, flood damage was severe, amounting to $500,000 in one community alone. In the protected watershed, eight upstream dams held back 1,000 acre feet (325 million gallons) of floodwater thus

Silt carried by runoff water chokes streams and rivers and accelerates pollution. Erosion resulting from poor upland management has destroyed many small lakes and reservoirs. Md-30201

providing protection to the farmland and the community of Lancaster. Had it not been for the watershed project, the resulting two to three feet of floodwater would have caused several hundred thousand dollars' damage in Lancaster alone.

A continuing study by USDA's Economic Research Service on the Six Mile Creek Watershed in Arkansas shows that since 1955 reduction in flood and sediment damage in the watershed has averaged nearly $45,000 a year.

L.L. Males, Cheyenne, Oklahoma, banker, said the Washita River Watershed project stimulates the land treatment program and pulls together all the interests in the community, rural and urban, into one force. "Instead of repeatedly losing a year's work to floods with

Erosion remains the number one problem on the Nation's farmland. Rapid runoff on this neglected field has cut deep gullies, making the land practically worthless. Io-2770

The Frye Creek Watershed project in Arizona prevented flood damage estimated in excess of $200,000 when the dam pictured below held back 195 million gallons of water from agricultural land and the city of Thatcher following a cloudburst in September 1962. Prior to the watershed project, land between the dam and city was subjected to yearly floods. Damage at Eastern Arizona Junior College alone ran $8,000 to $10,000 a year. Now the college has a $1½ million expansion program underway. New classrooms, stadium, and gymnasium are under construction (right of photo center) on land that couldn't be developed prior to project protection. Ninety new homes and apartments have been built in Thatcher since the start of the project which is scheduled for completion in 1964. Ariz-5446

the disastrous effect they had on our economy we now harvest our crops ourselves. Our improvements, our livestock, our irrigation systems, our roads and bridges, and our school bus routes are all safe. In our district we haven't lost a crop or a bridge on a treated creek since the program began."

Prior to the establishment of the Sandy Creek Watershed project in northwest Pennylvania, repeated flooding had not only discouraged new industries but several established firms had planned to move. Today, only three years after the project was started, an electronics firm which had planned to leave because of high annual flood damage has decided to stay on and expand. A lumber firm that had fought flood waters annually has also expanded because of the protection provided by the project.

IMPROVE LAND USE

Land conservation treatment measures are basic to any watershed project. The flood retarding dams would be far less effective if soil and water conservation measures were not applied on the upland farms, ranches, other rural and public land of the watershed.

For this reason the Department of Agriculture requires at least one half the land above floodwater retarding dams to be under basic conservation plans and no less than 75 percent of the land treatment measures must be installed on extremely erosive areas before the dams will be constructed.

Beach developments along watershed reservoir shorelines are one of the most popular recreation features. Such developments are among those now available to project sponsors on a cost sharing basis. Va-W-83

Camping is one of the fastest growing outdoor activities and a special treat for children. Here boys and their dads enjoy a weekend camping trip along a flood detention reservoir developed for recreation in the Green Creek Watershed project. Tex-49850

On weekends both rural and urban people are attracted to this reservoir developed for recreation in Cummins Creek Watershed project in Texas. The small lake offers fishing, swimming, boating, waterskiing, and picnicking facilities. Tex-49845

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Fishermen try their luck in a well stocked reservoir in Nebraska's Brownell Creek Watershed project. State and Federal agencies will often help local sponsoring groups in stocking watershed project lakes. Neb-2073

The Yonah Girl Scout Council developed this area in Georgia's Sautee River Watershed project to serve as a summer camp for 1,300 girls and 400 adults in a five county area. The camp has been developed for swimming, canoeing, hiking, and other sports. Boat docks, cabins, a recreation hall, and dining hall have been constructed. Ga-W-2

Farmers are encouraged to use land within its capabilities as determined by a scientific soil survey made by the Soil Conservation Service. On certain land this may mean converting from row crop production to pasture or trees.

A study of 361 watershed project work plans by the Economic Research Service shows that cropland previous to the projects totaled 7,042,000 acres and that cropland after installation of the projects would total 6,876,000 acres--a decrease in cropland acreage of nearly 167,000 acres.

A 1963 study of 66 watershed project work plans in Texas showed a projected reduction of 13 percent in cropland acreage when planned measures are installed. This shift will be primarily to grass, although a relatively small amount will go into non-crop uses such as reservoir areas, rights-of-way, and urban areas.

ENHANCE RECREATION OPPORTUNITIES

Of the various purposes included in watershed development, recreation is rapidly becoming one of the most popular. People have more time, more spendable income and greater mobility than ever before. They are seeking the out-of-doors in ever increasing numbers.

Watershed projects offer a new opportunity for the development of water-based recreation facilities. Through the Food and Agriculture Act of 1962, Congress made provisions for the Department to give technical and financial assistance for public recreational developments in watershed projects.

Watershed project sponsors in many areas are already offering recreational opportunities to both urban and rural people.

Thousands of people around Weatherford, Oklahoma, have been using a 158-acre watershed lake in the Cobb Creek Watershed project for swimming, fishing, boating, water skiing and picnicking. In cooperation with the Deer Creek Soil and Water Conservation District, the County Commissioners of Washita County have provided access roads and trails into and around the lake. Boat docks and sanitary facilities have been built. People from a 50 mile radius make intensive use of the lake facilities.

The Indiana State Fish and Game Division is developing a public recreation area in and around a 46 acre lake in the Elk Creek Watershed project. The State has also purchased 250 acres adjoining the lake for public use.

The City of Plain Dealing, Louisiana, has developed two lakes in the Upper West Fork Cypress Bayou Watershed project for swimming, boating, water skiing,

fishing, and picnicking. Sixty acres of municipal property adjoin the lakes. Although the city has a population of only 1,300, as many as 3,000 people have been attracted to the lakes in a single day.

The watershed project has effectively curbed flooding of the city and farm land. It also provides 750,000 gallons of water daily from one of the project reservoirs for use of Plain Dealing residents and industries.

In West Virginia approximately 100,000 visitors are expected annually to the new recreational area in the Big Ditch Run Watershed project. The West Virginia Department of Natural Resources, with Federal assistance, is enlarging one flood prevention reservoir from 10 to 65 surface acres and acquiring 105 acres adjoining the lake. It has purchased at its own expense an additional 491 acres around the lake for a park. The area will be developed for swimming, boating, camping, ice skating, and picnicking.

Besides providing much needed flood prevention, some watershed projects will also considerably enhance the tourist industry in the areas.

In Arkansas' Flat Creek Watershed project, one of the reservoirs is being developed into a 700 acre lake, called Lake Charles, for recreation by the Arkansas Game and Fish Commission. This new lake, plus an adjoining 2,700 acre state game and fish area, will combine to attract thousands of people seeking recreation from a 100 mile radius that includes Memphis, Little Rock, and many other communities.

Many church and private organizations are developing recreational sites in watershed projects.

For example the Waynesboro, Virginia, Kiwanis Club bought 235 acres of land in the South River Watershed project which included one of the flood retarding dams. The club developed the area around the seven acre lake to provide camping facilities for under-priviledged children of the Waynesboro area. During the two week camping periods, children enjoy boating, swimming, and campfire programs on the lake's waterfront.

The Tennessee-Arkansas-Mississippi Council of Girl Scouts is financing the recreation development around one of the watershed lakes in the Tennessee Porters Creek project. Miss Virginia Jones, council director, said "Our 9,000 girls and the tens of thousands who will follow owe a debt of gratitude to everyone who cooperated in making this lake possible." The camp, which will house more than 500 girls and their counselors at one time, is being financed by the girls themselves. Miss Jones said, "We don't figure in dollars. We figure in cookies. The camp has cost us about 300,000 boxes of cookies, dutifully sold by Girl Scouts in the three States."

In Illinois the Mennonite Church found the ideal summer campsite for church members in the Tiskilwa Watershed project. The church purchased 280 acres on which a dam and 12 acre lake were located. Two cabins to house the staff and five cabins for children have been erected. There are dining facilities for 40 people.

This multiple purpose flood retarding dam protects the community of Cameron City, West Virginia, from flood threat and stores water for municipal uses. WVa-896

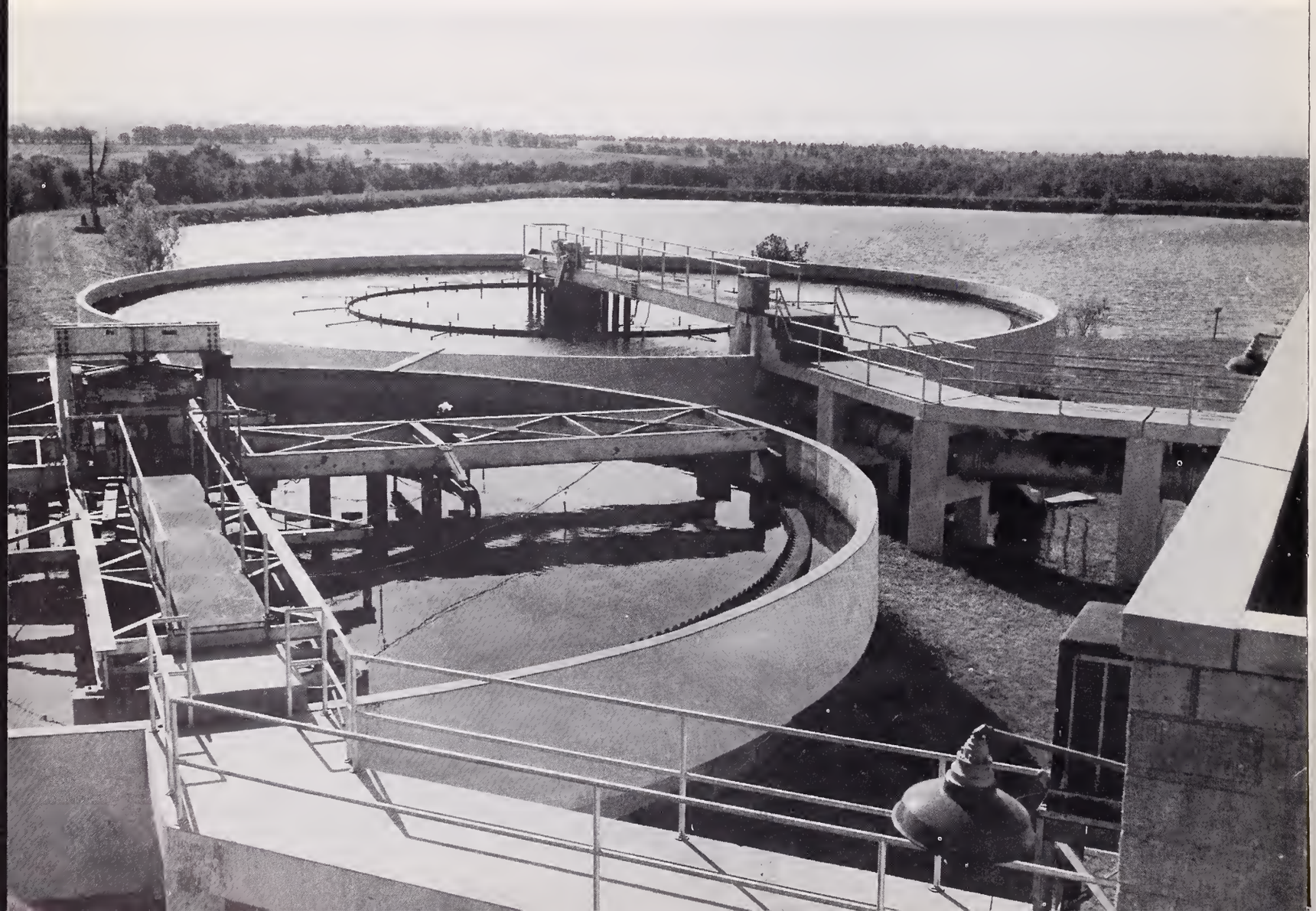
SUPPLY MUNICIPAL WATER

Industrial, municipal, and residential expansion depends on water, which is in short supply in many areas. Since the demands for water are growing far faster than our population is increasing, this problem is expected to become more serious in coming years.

Many communities are meeting the challenge of adequate water supply for present and future needs through the Watershed Protection and Flood Prevention Act.

The community of Pittsfield, Illinois, had a long history of severe spring floods and summer water shortages. In the drought years of 1953 and 1954, water was hauled from the Mississippi River and monthly water bills of $30 were not unusual. Rural and urban people got together to sponsor the Blue Creek Watershed project to prevent seasonal floods and provide water for municipal uses. As a result, there is now a 250 acre lake and a new water treatment plant to send pure water to local homes and industries. The watershed reservoir holds almost a billion gallons of water for municipal use. In addition, the city bought 500 acres around the lake on which it is developing a recreation area for fishing, boating, camping, and picnicking. Two new housing projects have started as a result of extended water and sewage lines, and a $500,000 nursing home is going up. Local people have formed an industrial association and purchased 132 acres for an industrial park.

In Oklahoma during the drought of 1955, the three city wells at Duncan went dry. Temporary pumps and pipelines from a distant lake could not meet the demand when the chief water source, Lake Duncan, became a mud flat. Water rationing made baths a luxury and threatened to close the city's main industries, oil refineries, and operations. The city joined forces with the Stephens County Soil Conservation District in sponsoring the Wildhorse Watershed project. One of the proposed 25 flood detention dams was enlarged at city cost to provide for 13,000 acre-feet of water for municipal use. The resulting 950 acre reservoir has been developed for recreation purposes by the city. Duncan is again moving ahead. The city's primary employer, an oilfield service firm, has announced a $6,800,000 expansion program. The city's refineries have already spend $2,500,000 for expansion and modernization.



IMPROVE WATER MANAGEMENT

Agricultural water management is another purpose of watershed projects. It includes irrigation, drainage, and supply and distribution of water for other agricultural uses.

The North St. Lucie River Watershed project in Florida was developed primarily for flood protection and at the same time to maintain an adequate water table to facilitate irrigation of the extremely valuable and highly productive citrus land. Since the project was completed, at least 1,000 acres of land formerly considered too hazardous for citrus is now planted to fruit trees. Farmers in the district have installed 50 new sprinkler irrigation systems. Due to adequate drainage, fruit production has increased. This has created a demand for additional picking labor, trucking, processing, packaging, and distribution services. A new $300,000 packing house--which will employ 50 people--is now under construction.

In Texas' Green Creek Watershed project, water from the sediment pools of 11 of the flood retarding dams is being used for supplemental irrigation on 408 acres of farmland. As a result of the irrigation, it is estimated that $25.83 additional net income per acre is obtained. The major irrigated crop is peanuts where average yields has been raised from 22 bushels per acre under dryland conditions to 62 bushels per acre irrigated. Other crops include tame pasture and crops for forage. The total net benefit from irrigation with reservoir water is estimated to be $10,538 annually.

A million dollar shopping plaza is going up in Keene, New Hampshire, on land considered unsuitable for this purpose until the Ash Swamp Watershed project was developed to improve drainage and give flood protection. Additional tax revenue from the shopping center alone will in just three years more than pay the $75,000 which the city invested in the entire watershed project.

The recently completed Lower Willow Creek Watershed project in Montana will furnish supplemental water for 3,100 acres of irrigated land which is devoted to alfalfa, small grain and hay. Benefits are expected to reach $26,800 annually.

In Indiana's Elk Creek Watershed project, one farmer paid the entire cost of enlarging a small dam built on his property so he could have water for irrigation. Sixty acres of land which once produced corn now produces two vegetable crops a year--early cabbage followed by canning beans.

A water purification system was constructed adjacent to the multi-purpose watershed project reservoir in Duncan, Oklahoma. The reservoir can deliver 8 million gallons of water daily for municipal, residential, and industrial uses. Okla-11882

Cover picture--This small lake was designed as part of the Big Blue Creek Watershed project to halt floods on agricultural land and furnish the community of Pittsfield, Illinois, with an adequate water supply. The city water treatment plant and pumping station can be seen in the lower left corner of the photo. The lake is also being developed as a community recreation area. Ill-2078

PROJECTS SERVE MANY NEEDS

The multiple use principle--a basic aim of the watershed program--is not only becoming increasingly popular, but is also highly advantageous in most project areas. Although the examples given here highlight a single use, most of these watershed projects have been developed for a combination of purposes.

Almost 60 percent of the projects approved for operation during the 1963 fiscal year were multiple purpose projects.

Rural and urban groups, communities and local governments have found watershed projects a vehicle through which they can plan and develop their natural resources to meet immediate and future needs for flood protection, water supply, recreation, fish and wildlife, irrigation, and drainage.

The small watershed program is an integral part of the Department of Agriculture's Rural Areas Development effort to move economic opportunities into rural areas, and to develop resources that conserve and serve the needs of all the people.

Detailed information of the USDA's watershed program--how projects are organized, developed, and financed--may be found in the publication, "Multiple-Purpose Watershed Projects," PA-575, which is available from the Office of Information, U.S. Department of Agriculture, Washington, D.C. 20250.

This Montana watershed project dam, designed for flood protection and irrigation, stores more than 1½ billion gallons of water. A portion of the water will be used as pictured below -- to furnish supplemental water for 3,100 acres of irrigated land growing alfalfa, small grains, and hay in the Lower Willow Creek Watershed project area. Mont-311 and 309 (left).

Magazines and newspapers may obtain glossy prints of these photographs in any size up to 8 x 10 from the Photography Division, Office of Information, U. S. Department of Agriculture, Washington, D. C. 20250. Others may purchase prints in any size from the same address. Prints in 8x10 size are $1.15 each. Specify title and number of this publication.